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IBM: management as a molder of corporate success.

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I. INTRODUCTION

The Research Question.

The study of business organizations relative to their successes and failures has become a significant pastime for businessmen, and provided considerable income for some micro-economists, academicians and magazine writers. Empirical knowledge has been the foundation of business theory and filled in where there has been no theory.

Emulation of successful organizations by those that are seeking the light of truth is being practiced constantly. General Motors' decentralized success under Alfred P. Sloane was imitated by many in an effort to achieve financial gain. Unfortunately, in borrowing methods from another organization, all attending conditions must be considered in order to be reasonably sure of similar results. All too often this was not done by General Motors admirers who discovered that decentralization was not the Midas touch.

Likewise, the purpose of this thesis is not to show exactly why a large corporation is successful, but to possibly shed some light on what is widely recognized to be the most valuable resource of that corporation, its management.

The International Business Machines Corporation (hereafter referred to as IBM) is often reputed to be one of the most successful modern corporations in the United States and the world. Evidence of this success will be explored in Chapter II. For now, it should be sufficient to know that it is an organization of rapid and consistent growth, now controlling some 70 to 80 percent of the world data processing equipment market.

Naturally, there are many IBM watchers, both professional and amateur who have varying opinions as to the key(s) to IBM's noteworthy record. Some of the reasons often stated are: computer hardware reliability; devotion to research in many areas; superior programming and software technologies; concentration on and perfection of salesmanship; seemingly unlimited customer support; superior manufacturing capabilities; maintenance of a high quality corporate image; selective hiring and promotion techniques; lots of cash and sufficient size to absorb the consequences of mistakes.

All of the foregoing seem to be legitimate contributions to the IBM success story to a limited extent; however, there is one more factor that is almost universally proclaimed and is more pervasive than those mentioned: superlative management. IBM's management practices are noted as among the most successful in modern industry.

These practices are not written in IBM doctrine since they are executed as dictated by the situation. We cannot, then, examine these practices, but we can gain some insight into the people who generate the decisions and see that they are executed.

It may be said that IBM's management practices are a function of its executives or managers. Management, after all, cannot stand alone without formulation, interpretation and execution by executives. The main research question of this thesis, then, is to pinpoint the characteristics possessed by IBM top management personnel that may contribute to IBM's extraordinary record, current status and future prospects. In examining this area, we should be able to analyze similarities or differences within the top management group, and also characteristics of that group that may either set it apart from other corporate managements or associate it with successful organizations.

Before this main question can be analyzed properly, however, other more basic questions must be researched: Has IBM really been successful and what constitutes that success? How is IBM organized? What are the key areas of that organization and who are the top managers? Are there any noteworthy characteristics peculiar to top IBM managers that are either similar to or different from other

successful industrial organizations? Where has IBM succeeded that other similar corporations have or have not? How will IBM top management react to changing social attitudes of the future?

It is expected that the answers to these questions will display IBM's management proficiency in its most fundamental element; the people who make the corporation work the way it does. This is an effort to characterize IBM top level managers in terms of who they are and where they come from as applied to what they do and why they do it.

Scope and Organization of the Study

In order to gain an adequate understanding of IBM management and attach the proper significance to the examination of that management, it is necessary that this thesis take on the structure of a case study. The first premise that must be established is that IBM is indeed successful and significantly so. This is done in several ways.

IBM's current standing among major U.S. industrial corporations is shown along with historical trends and future projections. Also, an examintion will be made of trends of various indicators, such as earnings in several forms. These are particularly interesting when related to stockmarket expectations and stock performance.

More specific comparisons will be made between IBM and similar corporations such as Polaroid, Xerox, Control Data Corporation and the Univac Division of Sperry Rand. In this way, parallels and divergences can be drawn to lend insight into management characteristics exhibited in the same or similar markets.

The last phase of IBM's success is often seen as the biggest limiting factor, and should therefore be examined: legal confrontation. Lawsuits have provided some of the stormiest episodes in IBM's history and will probably continue to do so. The very nature of its size, growth rate and market dominance have made IBM vulnerable to this avenue of attack. Many IBM watchers see legal action as the only significant inhibitor to continuing growth and dominance.

To be fully appreciative of IBM as a commercial insitution it is necessary to understand its history. IBM is built to a greater extent than most corporations on tradition and dominant personalities. An understanding of these traditions and personal influences is vital to corporate behavior, even now in a dynamic business environment.

To this end we will examine the formation of IBM by its noteworthy organizor and driver, Thomas J. Watson. The patterns of growth from the meager early 1900's to

the present colossus will be explored. And finally, we will become acquainted with the IBM corporate beliefs and goals as outlined by Thomas J. Watson, Jr., inheritor of the IBM family legacy and Chairman of the Board. These philosophies are sometimes discounted as having less meaning in today's business than they once did, but are essential to the appreciation of the IBM way of life and aura of success.

Next, it is necessary to look at the present IBM corporate organization. The organization itself and the rationale behind that organization is described, as well as trends in that organization. The most apparent reason for outlining the IBM organization is to ascertain key organization positions within it. The men filling these positions are those that will be analyzed in the following chapter.

Designation of top management is the first necessary step to analysis of IBM managers. Basically, they are; the Chairman and Vice Chairman of the Board, President, Executive Committee Chairman, all Senior Vice Presidents, all Vice Presidents, all Group Executives, all Division Senior Executives or Presidents, the Secretary, the Treasurer, and the Controller. Other members of the Board of Directors are excluded because they are recruited from other institutions and may not necessarily reflect

IBM management development and philosophy.

Biographical information on these individuals is analyzed relative to the IBM Executive group and to other leading industrial corporations. The information extracted is: age, formal education, occupational background, tenure with IBM, promotion pattern and other less tangible overall group characteristics. Tabulation and comparison of this information is used to show how IBM management is different from some other successful organizations, and how it is to a great extent internally homogeneous.

Exploration of historical or present traits is of little value unless projected into the future. The last area of research is therefore involved with how IBM will react to future situations. Answers to several questions will be attempted: Will the current emphasis on marketing continue to be as all-pervasive? Will the technological explosion change management patterns or the principle sources of top management personnel? How will IBM respond to the increasingly important role of social responsibility? Will IBM top management recruiting and promotion practices be affected by such social attitudes as anti-establishment sentiments, trend of college graduates away from business careers, and increased employee mobility?

It is assumed that these are questions for which IBM itself may not yet have the answers; yet they are germane

to its future status and worthy of speculation. IBM trades to a great extent on its image as an icon of the industrial community, and as such will probably continue in attempts to embellish that image. In trying to answer the above questions, further insight into the IBM corporate management character is developed.

Research and Analysis Methods.

The research methods used were of three basic types: library reading, interview, and correspondence inquiries. Correspondence inquiries were addressed to IBM corporate offices. One interview was conducted with a local IBM information representative. Other conversations have been conducted with various IBM customers and employees prior to formal commencement of the thesis research effort.

Current periodicals were the source of the chapter related to IBM success. The variety of sources is viewed as being objective testimony to success patterns. Three books furnished background information for both the historical chapter and the chapter on IBM success.

Material on IBM organization was obtained through an interview with a local IBM information office and recent IBM Annual Reports to Stockholders. Biographical material on top management personnel was obtained through correspondence

with IBM corporate headquarters and various business inquiries.

Information and opinions on the future of IBM was also obtained through correspondence with corporate headquarters, various periodicals and books, along with a certain amount of personal speculation. The value of these judgments in enhanced through personal exposure to IBM employees, IBM ex-employees, IBM customers, and customers of other competing corporations.

One other book, Top Management[1], is particularly helpful in comparing IBM top management characteristics to those of fifteen other leading U.S. industrial corporations. The various biographical qualities previously mentioned are tabulated for the 43 IBM executives selected and percentages extracted. These percentages are then compared to those of the fifteen surveyed corporations for similarities and differences.

It is realized that analysis based solely upon information from IBM is of necessity not always objective. It is felt, however, that the diversity of articles and books, in addition to personal experience, provide the objectivity required. At times the comments contained in

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[1]Paul E. Holden, Carlton A. Pederson, Gayton E. Germane. Top Management. (New York: McGraw-Hill Book Co., Inc., 1967).

this thesis may appear to be slanted toward IBM, but this is because IBM's progress has in fact been most exceptional. And it is because of its exceptional long term record that IBM is selected as the object of this research.

II. IBM SUCCESS

Current Standing.

Gilbert Burck and the Editors of Fortune have stated:

"IBM's movement to competitive strength is not yet equalled in industry."[1]

"No capital goods industry has grown so fast [as the computer industry]. No capital goods industry has been so dominated by a single company [IBM]."[2]

A recent issue of Business Week says:

> Few if any companies dominate their major markets the way International Business Machines Corporation does . . . a company so highly vaunted for crisply efficient management . . .[3]

Such comments are strong testimony regarding IBM's present position in the marketplace. It is not possible to quote the precise share of the market controlled by IBM because there is no agreement on a percentage figure. IBM competitors and the Department

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[1]Gilbert Burck (and the editors of Fortune). The Computer and its Potential for Management. (New York: Harper and Row, 1965), p. 67.

[2]Gilbert Burck. "The Computer Industry's Great Expectations," Fortune, August, 1968, p. 92.

[3]"When Products Fail IBM's Tough Test," Business Week, December 20, 1969, pp. 20-1.

of Justice estimate around 80 percent. IBM will admit to something short of 70 percent. Fortune claims IBM control to be 70 percent and stable.[1]

Some comment about the market in which IBM competes is in order. It can be categorized into hardware (computers) and software (programs and systems). The software market is worth nearly $2 billion annually. Roughly three-fourths of it is controlled by hardware manufacturers, and three-fourths of that is controlled by IBM.[2]

The hardware market is expanding at a rate of about twenty percent per year and now totals about $14 billion per year. It is expected to reach about $30 billion by 1972, and IBM is expected to maintain its 70 per cent plus share.[3]

It is foreseen that the computer or information sciences industry will continue to expand significantly as has been the case since it began in the early 1950's. The reason is that the technology feeds on itself, expanding man's creativity and ability to learn. New technologies are devised and new information justifies new pursuits. In the business world, automatic data

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[1]Burck. "Great Expectations," p. 92.

[2]Burck, The Computer and its Potential for Management, p. 137.

[3]Burck. "Great Expectations," p. 145.

processing has been sold more to furnish information and better management techniques than to streamline existing methods. In a more material aspect, computers are just now able to learn by experiences through heuristic programming. Computers are also being used to design other computers--the beginnings of a sort of mechanical propagation.

Western man's involvement with automation is now nearly irreversable. Return to manual methods in the business world is all but unthinkable. Most scientific achievements to date would be stagnant, if not nullified.

Perhaps a more meaningful indication of IBM's stature in the industrial community is its position relative to other leading industrial corporations in recent past years. National rankings according to Fortune provide possibly the most substantial picture of IBM's comparative progress over recent years.[1]

In the area of gross sales, IBM has risen from eighteenth place in 1963 to tenth place in 1965, then to seventh place in 1967 and finally to sixth place in 1968.[2] During that period IBM has jumped ahead of Westinghouse, Bethlehem Steel, Mobil Oil, DuPont, Texaco, and U.S.

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[1]"The Top 500" (Industrial Corporations). Fortune, May 15, 1969, pp. 121-5.

[2]1969 statistics are not yet available.

Steel in sales.

In net income, IBM has overtaken Ford Motor Co., Gulf Oil, Standard Oil of California, Texaco and DuPont, in progressing from ninth place in 1963 to third place in 1968.[1]

Other Fortune statistics show that IBM ranks number five in number of employees in 1968, number seven in total assets, and number six in investment capital. IBM has advanced from twnety-second to nineteenth in net income as a percent of sales, and from sixty-sixth to thirty-seventh in net income as a percent of investment capital between 1967 and 1968.

IBM's growth rate was forty-fifth among the top five hundred industrials in 1968. Although IBM's growth is noteworthy it probably ranks no higher than this because of its already considerable base against which growth rate is measured.

The total market value of IBM common stock is the highest of all industrials and its price per share is the highest on the New York Exchange. In the ten-year period from 1959 through 1968, IBM stock splits have totalled 280 per cent. This information is relatively unimportant except as a gauge of investor's expectations

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[1]"Here Comes IBM," Forbes, March 1, 1968, p. 48; and "The Top 500," Fortune, May 15, 1969, pp. 121-5.

with regard to future IBM market potential and earning power. This information becomes more significant when viewed in conjunction with Exhibit 1.[1]

Although the price-earnings ratio for IBM common stock has been so high as to give some market watchers cause to think the price will someday tumble of its own weight,[1] Exhibit 1 shows that this indicator has so far been ignored by investors, probably due to steady and impressive growth in earnings, shareholders, and expectations of future earnings potential.

Comparison With Similar Organizations

When examining a corporation it is often useful to obtain some knowledge of other organizations of the same type. In order to achieve a well rounded comparative picture, two corporations of similar character will be discussed, both of high marketing and technological competence, but not necessarily competing in the same market: Polaroid and Xerox. Next, two other corporations will be examined which are the strongest competitors with IBM in the data processing world: Control Data Corporation

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[1] Moody's Handbook of Common Stocks, Third Quarter 1969, p. 502; and IBM Annual Report, 1968, pp. 56-8.

[2] Earnings per share in 1969 were $8.21 with the market price of common stock near $350 per share.
Price-earnings ratio = $\frac{\text{market price per share}}{\text{earnings per share}}$. $\left(\frac{\$350}{\$8.21} = 42.5 \text{ to } 1\right)$
Price-earnings ratios for the Fortune Top 500 companies average about 17 to 1.

EXHIBIT I

IBM INCOME AND PERFORMANCE STATISTICS--1958 through 1969

	GROSS REVENUE (millions)	NET INCOME (millions)	SHARES OUTSTANDING* (millions)	EARNINGS PER SHARE*	DIVIDENDS PER SHARE*
1958	$1,171.8	$126.2	105.0	$1.20	@ .29
1959	$1,309.8	$145.6	105.3	$1.38	$ .35
1960	$1,436.1	$168.2	105.6	$1.59	$ .52
1961	$1,694.3	$207.2	105.9	$1.96	$ .60
1962	$1,925.2	$241.4	106.4	$2.27	$ .78
1963	$2,862.7	$364.3	106.8	$3.40	$1.11
1964	$3,239.4	$431.2	107.8	$4.00	$1.54
1965	$3.572.8	$476.9	108.3	$4.40	$1.95
1966	$4.247.7	$526.1	111.6	$4.71	$2.10
1967	$5,345.3	$651.5	112.2	$5.81	$2.17
1968	$6.888.5	$871.5	113.0	$7.71	$2.60
1969	$7,197.3	$933.9	113.7	$8.21	$3.60

*Adjusted for stock dividends and splits

Source: IBM Annual Report for 1968, p. 56 and 1969, p. 58.
Moody's Handbook of Common Stocks, Third Quarter 1969, p. 502.

and the Univac Division of Sperry Rand.

A. POLAROID.

Along with IBM and Xerox, Polaroid is known as one of the leading growth stocks.[1] Further, Polaroid ranks twenty-first among industrial corporations in total stock market value, but only 344th in sales. This seeming paradox is attributable to the theory that the stock price is based on faith in Polaroid's marketing, technology and public image in the form of anticipated earnings.[2] This is apparently the same type of faith investors show in IBM.

There are also other similarities. Polaroid is mostly the product of one man's personality: Edwin H. Land, founder, President, Chairman of the Board, and inventor of the self-processing camera. His close associations with Harvard and MIT have given him valuable technological allies and a wealth of status.

Technology and patents play a large role in Polaroid, as they do in IBM; however, in both organizations, technology generally proceeds more rapidly than patent life expiration. Polaroid is continuously

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[1]Adam Smith, The Money Game. (New York: Dell Publishing Co., 1969), p. 180.

[2]"Polaroid." Forbes, June 15, 1969, p. 42.

developing new techniques to stay ahead of would-be competitors. One of Land's objectives is to make only products or features which other companies are not willing or able to produce.

Polaroid views its camera marketing effort as mostly a prerequisite to film sales. That is, the more cameras that are in the public's hands, the more film will be sold. One of Polaroid's major advantages over the patriarch of the industry, is that Kodak signed a consent decree in 1954 in answer to restraint of trade allegations prohibiting marketing of film processing as a part of the price of the film; in Polaroid's case, such separation is not possible.

Marketing is as important to Polaroid as it is to IBM. In fact, Polaroid's success is more widely attributed to marketing than to technology. Markets are carefully picked. Television and magazine exposure recently aimed at the youth market is now stimulating camera and film sales in supermarkets. Attempts are being made to develop increasingly smaller cameras so that nearly anyone can carry one as a convenicnce item. There will then truly be a mass market for Polaroid film.

Edwin Land started as a technician, but now has become a very competent management executive. His management policies are interesting and in many ways

different from those at IBM. He does not believe in scientific management, does not write long memos, and does not have a company organization chart. Land does, however, take considerable interest in his employees, frequently telling them informally what Polaroid is doing and where it is going. In this effort to preserve the small company atmosphere, he is following the same goals held by IBM. On the financial side, Land is somewhat of a unique thinker. He sees no point in acquisition of other companies and diversification, though Polaroid stock value would make such a strategy easy. He also refuses to finance operations through long term debt. All production increases to keep up with marketing plans are financed through increased stock sales. The theory is that the stock base is large enough and prospects are good enough so that earnings per share aren't significantly diluted.

The above comparisons between Polaroid and IBM are useful in understanding the philosophies of expanding, successful corporations. Polaroid is currently pointing towards slides and movies, which may pave the road to overtaking Kodak. It is possible that Polaroid may even become a participant in IBM's market through the photographic recording or production of data. The main similarity in philosophy between the two is their emphasis on marketing.

B. XEROX

Xerox is discussed here as a company whose growth resembles that of IBM, but which is not an IBM competitor in the data processing market. In reality, Xerox recently acquired control of successful Scientific Data Systems and is now in IBM's territory under the new name of Xerox Data Systems (XDS).[1]

Xerox was founded in 1906 under the name Halloid Co. which produced photographic papers. Today Xerox competes with many companies in the copying business, but protects its techniques of copying on ordinary paper with some 500 patents. Since 1960, Xerox sales have increased 18 times, profits 37 times and market value of common stock 50 times. Profits have grown at a rate of twenty per cent for six consecutive years.

Again, Xerox places greatest emphasis on marketing with a 7,800-man national sales force. The technology and application of copying has evolved into business systems, with salesmen acting as business consultants in the same way computers are marketed. Xerox national growth rate of fifteen percent per year is exceeded only by its expansion abroad.[2] Its international nature is very similar to that

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[1] "Portrait of XDS After its First Day in Business", Business Week, December 20, 1969, p. 90.

[2] "New Top Copy at Xerox." Time, May 24, 1968, p. 92.

of IBM.

Like many computer manufacturers, Xerox rents its machines with an additional usage fee per copy. This type of marketing provides deferred, but steady cash flows into the company enabling it to expand under stable financial planning.

Xerox has capitalized on scientific development to form a sound technological base. Its management's visionary attitudes on expanding business markets have made it very similar to IBM. The company has shown high profits and investors have reflected the same high expectations. As XDS it may soon be competing with IBM in the area of information systems.

C. UNIVAC

The Univac Division of Sperry Rand has perhaps the longest experience in the computer field of any major company. It was in 1950 after IBM had chosen not to buy the first electronic computer developed by J. Presper Eckert and Dr. John W. Mauchly that Univac acquired the Eckert-Mauchley Corporation and their Eniac. In the following year the first UNIVAC I was produced.[1]

From that time on Univac became a household word

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[1]Thomas Belden and Marva Belden. The Lengthening Shadow. (New York: Little, Brown and Co., 1962), p. 261-2.

resulting from its role in tabulating and forecasting election returns. Unfortunately for Univac, its management was neither cohesive nor perceptive enough to capitalize on the newfound image. Univac's share of the computer market was one hundred percent in 1952 and dropped sharply thereafter.

Univac from from the outset a technologically oriented organization. Senior management seemed to lack the vision to see how commercial business would develop.

Univac President, Robert E. McDonald has said,

> We developed some outstanding machines in the large-scale and real-time area, but we never mounted the marketing organization to sell them. . . We always underestimated the power of the computer. We couldn't visualize its influence.[1]

There were also open management conflicts in the organization. When design faults were found in the UNIVAC I there was much shifting of blame and accusation. Amidst the furor, several of Univac's best people resigned, among them William Norris, now Chairman and President of the formidable Control Data Corporation. It is obvious there were no clear lines of authority. Management visibility was fuzzy and problems were difficult to pin down.

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[1]"Univac Comes In From the Cold," Business Week, November 22, 1969, pp. 161-3.

"By today's standards, Univac's first 15 years were almost complely unplanned.", McDonald says.[1]

Until recently, Univac's organization may be characterized by absence of goals, underestimation of the product, lack of planning and organization, management bickering, and lack of salesmanship and marketing emphasis.

Gilbert Burck has said, "Few enterprises have ever turned out so excellent a product and managed it so ineptly."[2]

More recently, however, Univac has recovered to some extent under the guidance of Dr. Louis Rader who moved from International Telephone and Telegraph, and who has since left Univac for General Electric. In 1963 Univac increased its dollar volume of installed computers by 23 percent. Its sale of the Air Force base inventory control system for $50 million was a milestone. Massive writeoffs of obsolete equipment have at least been partially compensated for by a constant lease-to-sale ratio providing steady cash flows.[3]

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[1] Ibid.

[2] Burck. The Computer and its Potential for Management, p. 42.

[3] "Company Reviews--The Big Eight Companies." Moody's Computer Industry Survey, Fall, 1968, pp. 281-2.

Univac now seems to be snapping out of its long-term slump through expert, market-oriented planning coupled with its still formidable technological expertise. Univac has shown profits during the past three years for the first time since many can remember. Emphasis toward large multi-processing computers having communications capabilities is evidence that Univac management is showing the perceptiveness of technological application to future markets so necessary to such a dynamic industry.

Univac's progression or regression since 1950 has been almost opposite to that of IBM. Successes in the marketplace have been sparce for Univac and abundant for IBM because of organization, planning, marketing, and above all, management. Where IBM has been firmly dedicated to these four areas, Univac has shown neglect. The results are startlingly apparent.

D. CONTROL DATA CORPORATION (CDC)

In 1956, the Univac dropouts, headed by William Norris formed the most notable new computer corporation. It is now coming close to overtaking Univac as the second largest manufacturer of computers, next to IBM. Its revenue from sales, rentals and services blossomed to $438 million in 1968.[1] Only CDC, Univac and IBM are

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[1] "Control Data Tackles the Giant," Business Week, June 28, 1969, p. 148.

currently earning profits in the data processing market. Its profits are second only to IBM in the industry.[1]

CDC has made this progress by competing in the market where the dominant IBM is weakest, large-scale scientific machines. Lately, however, CDC has been expanding into an entire product line and looking more and more like IBM.[2]

Most of CDC's business has been in rentals so that much income is deferred. Because big chunks of capital are required for expansion, CDC has acquired control of the Commercial Credit Company and actively sought more business through outright sales.

One of Norris' objectives through expansion is to achieve a large enough financial base to house IBM-type risks. Previous marketing targets have been government and universities,[3] but now business applications are beginning to require systems as large as scientific work so that CDC is in a position to penetrate the commercial market to a significant extent.

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[1]T. A. Wise, "Control Data's Newest Cliffhanger," Fortune, February, 1968, p. 126.

[2]"Control Data Digs its Goldmine," Business Week, September 28, 1969, p. 59.

[3]Wise, "Control Data's Magnificent Fumble," p. 165.

Along with greater manufacturing facilities being built to accommodate this expansion, a greater marketing force is being developed. CDC's advancements in technological design of large computers is seen to be two years ahead of IBM; however, Norris sees the need to overcome the IBM reputation. The answers is apparently better equipment and customer support.[1]

As with IBM and Polaroid, CDC is largely the manifestation of key personalities. Seymour R. Gray is among the leading computer developers in the world. It is his influence that is chiefly responsible for CDC's technical excellence.[2]

The most dominant personality is that of William Norris, who is said to be tough, seasoned, autocratic and a careful handler of money. His goal is to be the "Ford" of the computer industry, conceding dominance to IBM. His leadership has boosted company morale to an exceptional level through a venturesome spirit. Norris has fathered a taut, fast-moving, enthusiastic and fluid organization.[3] In fact, it is Norris who is

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[1]Wise, "Control Data's Newest Cliffhanger," p. 177.

[2]"Control Data Tackles the Giant," p. 148.

[3]Wise, "Control Data's Newest Cliffhanger," p. 127.

almost singularly inspiring current legal action against IBM in which has all the earmarks of a lasting confrontation.

At the present time CDC appears to be IBM's most serious competitor and a dynamic force in the computer market. Its characteristics are very similar to IBM's. CDC is agressive and building a sizable marketing force. The quality of its equipment is well established. Most important, its management is perceptive and has clear goals on where the future lies. This feeling is passed throughout the organization so that employees are convinced they are members of a winning organization.

Legal Confrontation

Lawsuits have provided some of the largest stumbling blocks in IBM's road to success. Yet these confrontations have played a large part in molding the IBM character, and have in many ways clarified corporate goals and strengthened the resolve of the organization to survive and excel in the fact of goverrment threats. To some extent, IBM's reputation for fair dealing and quality marketing was spawned through federal government legal action.

The pattern started to form in the early 1900's before IBM, when Thomas Watson, a sales manager for the

National Cash Register Co. (NCR), was placed in charge of dealing with competing companies. Watson vigorously pursued his competition in the used machine market by secretly "inducing" by various means many of the smaller used cash register dealers to sell out to his dummy company.

One prominent tactic used against new machine competitors was to make a machine that looked like the competitive model and sell it for less than the competitor's machine, or build in features causing it to fail prematurely, leaving the impression that competitor's cash registers were inferior. These were called "knockout machines," peddled by "knockout squads" or "knockers".

In 1912, Watson and several other NCR executives were indicted on three counts of criminal conspiracy in restraint of trade and maintaining a moroply. Early in the following year they were convicted and sentenced. Watson was tagged for five years, but because of appeals, later good deeds and the omnipresent passage of time, the case merely died out and the sentence was never served.[1] Apparently the experience made a profound impression on

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[1]William Rodgers, Think. (New York: Stein and Day, 1969), pp. 44-5.

Watson, for one of his most often spoken admonitions throughout his days at IBM was "Do right!".

By 1935 IBM was firmly established, and together with Remington Rand, produced virtually all data processing equipment in use. The U.S. government was at that time the largest user and was desirous of producing and printing blank punch cards itself in order to save money. Unfortunately, IBM's policy at the time was that no one else's cards but IBM's were of sufficient quality to guarantee adequate machine performance. Furthermore, IBM and Univac had entered into an agreement whereby one company would not attempt to market its products to firms where the other was exclusively employed.

The government saw that such actions were in restraint of trade. In 1936, IBM was convicted of restraint of trade, but Mr. Watson always contended that IBM's practices were in the furtherance of aggressive free enterprise.[1]

Again, in 1955 the federal government had misgivings about IBM's size and dominant capabilities. This time it was out to dissolve IBM's policy of making its machines available through lease only. Also, IBM

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[1] Ibid., p. 130.

had patent rights on a high speed press that was able to produce cards faster and more economically than anyone else, to the extent that IBM again virtually monopolized all card sales.[1]

In 1956, over vehement protesting by the aging Chairman, Thomas Watson, Tom Watson, Jr., then corporate President, signed a consent decree, paving the way for outright sales of equipment and agreement by IBM to divest itself of card producing capability down to fifty percent of the total available in the industry. IBM was forming an image as a vigorous competitor, but one which was eager to play by the rules.

And now IBM is once again embroiled in legal hassles, only this time the adversary has several heads. The Data Processing and Financial Corporation, largely a marketer of data processing services, has charged that IBM's packaging of programs with computers under the same price structure is discriminatory, in that IBM customers receive preferential treatment.[2]

The young and prosperous Control Data Corporation has charged IBM with restraint of trade through the

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[1] Ibid., p. 211-2.

[2] "Another Great Divide", Forbes, February 1, 1969, p. 15.

marketing of "phantom computers." That is, according to CDC, when CDC was preparing to announce their giant model 6600 in 1965, IBM announced their System 360, model 91 and persuaded many would-be CDC customers to hold their orders to see if the IBM machine couldn't do the job better. When the 360/91 failed to materialize, primarily because of programming and systems (software) delays, CDC President, William Norris challenged IBM's intent.[1]

More recently, CDC announced its latest super computer, the 7600 and some think that CDC's legal assault is an effort to temporarily forestall IBM announcement of a competing computer and, therefore, gain a market advantage.[2] Whatever the rationale, it is a formidable legal effort because of IBM's vulnerable position as the dominant figure in the market.

There are also lesser lawsuits being brought against IBM. Typical of these is young Joan Van Horn's accusation that IBM gives preferential equipment prices to its wholly-owned subsidiary, Service Bureau Corporation, in order to give it an advantage in the computer time-sharing and real-time markets.

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[1] "IBM and the Feds Make Three," Moody's Computer Industry Survey, Winter, 1968-9, p. 191.

[2] "Another Great Divide", p. 17.

Finally, the Justice Department, on the last working day of the Johnson Administration filed suit against IBM for being so large and dominant as to be monopolistic. The main goal of this suit is divestiture by IBM of its various divisions and perhaps restriction from certain markets such as time-sharing and real-time.

IBM has declared that it will fight all of these suits vigorously, and of course, contends that they are ill founded. Since 1956, IBM has contented the Justice Department with the consent decree of that year. But since 70-75 percent market control is commonly acknowledged to be justification for anti-trust actions, IBM has been on thin ice.

The most convincing argument put forth by IBM is that its development and expansion almost single-handedly spawned the data processing industry as we know it today, and that new companies are continuously starting and flourishing. Many other companies in the industry agree with this. Also, IBM's careful observance of nondiscriminatory pricing and disdain for price cutting have constructed a price umbrella, allowing other firms to keep their prices relatively high.[1]

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[1] "Under IBM's Umbrella." Forbes, July 15, 1968, p. 17.

There are many who believe that divestiture by IBM of many of its divisions and subsidiaries will lead to dominance by many smaller IBM's and serve no real purpose. This was in fact the case when Standard Oil was judicially broken up. With independent IBM spin-offs competing with other companies in more specialized areas, many prospective customers may still prefer the ex-IBM products because of past experience and the expectation that they will receive higher quality because of IBM's observance of the consent decree and the splitting legal action.

IBM has already "unbundled" its programming and software from its hardware pricing structure and is now selling it independently in competition with smaller software houses. The decrease in equipment prices is roughly three percent. Now other computer firms will feel the pinch to do the same, like it or not.

Although continually faced with legal action, IBM has built up a high quality reputation respected by most customers, many competitors and the public. Whatever the outcome of the present legal skirmish, many agree that IBM will continue to be prosperous and perhaps turn adversity into advantage.

Legally, IBM provides a challenging opponent for the Feds. In 1965, IBM hired Burke Marshall, former U.S.

Assistant Attorney General,[1] as its general counsel. Marshall is now a corporation Vice President. In 1968 Nicholas de B. Katzenbach, former U.S. Attorney General,[2] joined the IBM legal staff as the current General Counsel. His staff was augmented last year by Cyrus Vance, direct from the Paris Peace Talks, and earlier Deputy Secretary of Defense.[3]

It is foreseen that this battle will last well into the 1970's. As in the past, efforts at supressing monopolies in the more dynamic industries such as data processing are often outstripped by technology. The charges made today may have no place in the industry of, say, 1975. The great card issues of 1936 and 1956 are relatively unimportant as computers rely less heavily on cards. The consent decree of 1956 made no mention of software dominance or free education for customers, both of which are vital now.

The outcome of the current lawsuits will undoubtedly affect IBM's success. It may be, however, that IBM's defense strategies and its evolution after

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[1] Who's Who in Commerce and Industry of 1968. (New York: A. N. Marquis Co., 1968), p. 882.

[2] Who's Who in America of 1968 and 1969. (New York: A. N. Marquis Co., 1968), p. 1172.

[3] Ibid., p. 2552.

the judgment is handed down may be more importnat than the judgment itself.

"Good fortune, good timing, intelligence and agressiveness sired IBM today."[1] It remains to be seen whether these elements will stand IBM in good stead in the courtroom as well.

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[1]"IBM and the Feds Make Three," p. 203.

III. FOUNDATIONS OF DEVELOPMENT

Company History and Thomas J. Watson

IBM was not founded by Thomas J. Watson, yet its development into today's successful company can be largely attributed to his leadership. Its corporate character, goals and beliefs were originally formulated by the elder Watson. Most are perpetuated in one form or another today, fourteen years after Thomas J. Watson's death.

Few large industrial corporations have been so heavily influenced by one man as IBM. Watson's role in his company may be equated to those of Henry Ford, Cornelius Vanderbilt or Charles Schwab. To understand IBM, one must have some knowledge of its patriarch and major developer, Thomas J. Watson.

Thomas Watson was born to modest agricultural surroundings in Painted Post, New York in 1893. At the age of 18, and after one year at a small business and accounting college, he left home to become a salesman. In do doing, he forsook legal and teaching careers in favor of the marvel of receiving money for doing something

he enjoyed. In this case it was talking to people and selling organs.[1]

Watson was affected profoundly by his early sales experiences. One of his first observations was what he saw as the golden rule of business: "Good business is a bargain that benefits both parties."[2] Tom Watson was selling organs for C. B. Barron, whom he looked up to as an icon of salesmanship; however, he looked on Barron's unscrupulous business morality with great distaste. Watson regarded Barron as a good lesson in bad business ethics, but took from him his grooming and dress standards, which were to be reflected by IBM salesmen years after Watson's death.[3]

The final great influence of young Tom Watson's sales career was that of alcohol. Time after time he saw otherwise successful salesmen succumb to whiskey while on the road, and quickly squander any gains they had made. Since those early days, Watson abstained and strongly encouraged similar behavior on the part of his associates.[4]

It was in 1895 that Thomas Watson's career began

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[1]Belden and Belden. Lengthening Shadow. p. 5.

[2]Ibid., p. 9.

[3]Ibid., p. 14.

[4]Rodgers, Think., p. 32.

to blossom in earnest. In that year he went to work for The National Cash Register Company. As before, Watson proved to be an outstanding salesman. His success led to rapid recognition by NCR President, John H. Patterson, who was a vigorous proponent of written procedures for nearly everything and a noteworthy aggressive business tactician.[1]

Patterson promoted Thomas Watson to Assistant Sales Manager in 1908, after his successful administration of NCR's second-hand operation. It was then that Watson became recognized as a better executive than he was a salesman.[2] It should be noted, however, that Watson mistrusted Patterson's many sales theories and procedures. He made his reputation with NCR by modification of these procedures and not through innovation.[3]

In 1912, Watson's career suffered a severe blow when 30 NCR officials, including Patterson and Watson, were indicted by the Justice Department as being in violation of the Sherman Anti-Trust Act of 1890, a result of their unscrupulous discrediting of competitors equipment.[4]

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[1]Rodgers, Think. p. 82.

[2]Belden and Belden, Lengthening Shadow. p. 33.

[3]Ibid., p. 49.

[4]See Chapter II. (Legal Confrontations)

Convictions were later brought about, but through a series of appeals and the passage of time, Watson never served the sentence.

Thomas Watson emerged from this experience somewhat disillusioned with Patterson, severely humiliated, and instilled with a new sense of moral correctness which was to dominate his behavior the rest of his life.[1]

The next year was one of great change for Thomas Watson. He helped John Patterson and NCR rescue the citizens of Dayton, Ohio from the great flood of 1913. Later that year he married Jeannette Kittredge. And finally, he was fired by Patterson; possibly for over-zealousness, leading Patterson to believe the popular Watson was attempting to seize too much power.[2]

Although Watson was emotionally struck down by this turn of events, he was determined to seek future success, preferably on his own or with a small organization in which he could make his mark quickly. After turning down promising offers from such industrial giants as General Electric and General Motors, Thomas Watson accepted the position of Sales Manager with The Computing, Tabulating and Recording Company. C-T-R, as it was called,

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[1]Rodgers, Think. p. 70.

[2]Belden and Belden, Lengthening Shadow. p. 86.

was a small holding company that owned Dayton Scale Company, Tabulating Machine Company, International Time Recording Company and Bundy Manufacturing Company. It had only recently been incorporated in June, 1911.[1]

Under the guidance of C-T-R's primary owner, Charles Flint, Thomas Watson succeeded to the Presidency in 1915. He was instrumental in coordinating the various C-T-R holdings into an integrated unit and inculcating his high standards of conduct and salesmanship upon the organization. Then in 1924, C-T-R merged with the small International Business Machines Corporation and assumed its name.[2]

The young IBM had already started to build its main manufacturing facilities in Endicott, New York, not far from the Watson homestead at Painted Post. The primary industry of that community at the time was the Endicott-Johnson Shoe Company. Thomas Watson was befriended by George H. Johnson, President of the shoe company. Johnson had achieved great popularity in his organization through warmth, camaraderie, and physical labor in the most unpleasant jobs alongside his employees.[3]

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[1] Ibid., p. 93.

[2] Ibid., p. 125.

[3] Rodgers, Think. p. 71.

In later years it became apparent that these characteristics were to influence Watson's behavior as strongly as the immaculate grooming of C. B. Barron and the rigorous regimentation and organization of John H. Patterson. In many ways Watson and his company were to become composites of all three individuals from the past.

Watson imposed many symbolic regulations on his employees that were unique. Some remain in various and urwritten forms today. He insisted that Employees neither drink nor smoke. White shirts and conservative suits were prescribed for salesmen. There were numerous company songs published and sung. Watson continuously admonished his salesmen to "Do Right!". To Watson, the way to righteousness was clear. He sought and received avid loyalty from all employees and thought of them as his family. Thomas Watson and his IBM were inseperable entities. His perpetuation of the company image was carried out on an almost evangelical plane.[1] Watson's approach to building IBM prompted Thomas J. Watson, Jr. to remark: "The company is in the family unconscious."[2]

In his unique manner, Thomas Watson led IBM to great annual gains between 1914 and the mid 1950's. Gross income increased from $4.1 million to $410 million,

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[1] Ibid., p. 149.

[2] Belden and Belden, Lengthening Shadow. p. 218.

net income from $.5 million to $92.3 million, and cash dividends on common stock from nothing to $12.7 million. Assets were multiplied times 24, number of employees times 34, development costs times 500, and data processing revenues times 316.[1] Although it is hard to assess the value of Watson's various management philosophies, the results of his efforts are indisputable.

In 1955, IBM was accused of restraint of trade because of its dominant market position, which was alleged to be some 90 per cent. Watson, since his days at NCR, had always operated in complete regard for the law and federal regulation. As a result, he opened all IBM files to government scrutiny. His attitude was that IBM had won its market position fairly, through sound business principles. The Justice Department demand that IBM offer its machines for sale as well as rent was rebuffed by Watson, in that IBM provided service, not machines, and therefore, leasing benefitted IBM's customers.[2]

Thomas Watson vigorously opposed signing a consent decree to satisfy litigation because he interpreted it as an admission of wrong-doing. What Watson

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[1] Ibid., p. 289.

[2] Ibid., p. 308.

could never understand even after the consent decree was signed in 1956 by Thomas Watson, Jr., then President, was that innocence is no excuse before the law. He was of the opinion that competitive success in America is virtuous, and that bigness creates good; a philosophy that still confronts anti-trust proceedings.[1]

It is significant that, in his twilight years, Thomas Watson's virtuous philosophies were to be shaken by his beloved country's actions. The integrity which permeated Watson's character and that of IBM was to be rocked by the country's attitude toward bigness. Watson found there were unpredictable and refractory forces which he, for the first time, could not influence shaping his life.[2]

Later in 1956, Thomas J. Watson died, and his eldest son, Thomas J. Watson, Jr. succeeded him as Chairman of the Board, where he still actively governs the company. Giving up a successful career in the Air Force, Tom Watson has led IBM on to even greater successes.[3] The youngest son, Arthur K. Watson, is presently Vice Chairman of the Board and past Chairman of the World Trade Corporation, wholly owned IBM subsidiary for all

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[1] Ibid., p. 293.

[2] Ibid., p. 312.

[3] See Chapter II.

international business. He was recent appointed as U.S. Ambassador to France, replacing Sargent Shriver.[1] They are joined in their leadership of IBM by T. Vincent Learson, the forceful, dynamic, highly competitive and demanding IBM President.[2] .

Under the new regime, many of the old standards of the senior Watson have disappeared, such as the IBM songbook, stiff collars, and drinking and smoking taboos. But there remains the essence of Watson in the loyalty of employees, conservative dress among salesmen, and the perceptible belief in doing right. It would be naive to assume, however, that this belief is not strongly influenced by the consent decree of 1956 and the continuous scrutiny of the Justice Department. Nevertheless, loyalty among IBM employees in such a large organization is unique and may be attributed to a pervasive attitude that IBM is too good to be destroyed by either competition or legal action.[3]

Aside from the other various indicators of growth and success enumerated in this research, it should be noted that IBM now employs about 250,000 people, one half

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[1] "Nixon Plans to Name IBM's Arthur Watson Ambassador to France," Wall Street Journal, March 4, 1970, p. 2.

[2] Rodgers, Think. p. 249.

[3] Ibid., p. 283.

of which are college graduates. Its stock market value is more than all the gold held in Fort Knox. Significant from an employee's point of view, IBM is the world's largest non-union company. The benevolence inspired by George H. Johnson is apparent in the benefits received by "IBM'ers", which exceed national union demands.[1]

Corporate Beliefs and Goals.

IBM's character and business success is predicated on several beliefs, as set forth by Thomas J. Watson, Jr. in 1963.[2] These beliefs are simple, and although business conditions and strategies change, the beliefs remain unchanged.

The first of these is respect for the individual in the form of wages, job security, dignity, accomplishment and involvement. Dignity is perpetuated through an "open door" policy which is practiced as frequently as possible.[3] All business decisions are considered in light of what may be right for IBM's people.[4]

The second belief is that customer service should

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[1] Ibid., p. 9.

[2] Thomas J. Watson, Jr. A Business and Its Beliefs: The Ideas that Helped Build IBM. New York: McGraw-Hill 1963, p. 5.

[3] Ibid., p. 24.

[4] Ibid., p. 70.

be the primary business goal. Equipment and systems are designed to fit customers' needs, rather than fitting their needs to existing equipment.[1]

Finally, IBM believes that it should pursue all tasks with the idea they can be done in a superior fashion. This embraces the philosophies of optimism, enthusiasm, excitement, and pace.[2]

One of the foremost characterists of IBM success, and yet one of the most enigmatic to its beliefs is growth. Figures throughout this research attest to the fact that IBM has grown at a rapid pace, hand-in-hand with its data processing market.

Naturally, when such rapid expansion takes place, management must make adjustments to compensate for whatever changes take place. Many companies succeed or fail upon how well they adjust to expanding business scales.

In adapting to growth, Thomas Watson, Jr. has also enumerated the most significant lessons learned through IBM's growth and the accompanying application of IBM management beliefs.[3] The first lesson, almost a prerequisite in any modern industry, is to keep pace with

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[1] Ibid., p. 31.

[2] Ibid., p. 35.

[3] Ibid., p. 71.

current technology in all relevant areas. Relevancy in this case also expands with technological development and company growth.

The second lesson is that education and two-way communications between all internal levels must be free and open. In fact, when the company is growing, these factors must be constructed at a rate exceeding the growth rate to accommodate the geometrically expanding communications network possibilities. The most vital intent of this lesson is that all employees and managers are aware of the importance and significance of the organization and their roles in it.

A short and self-explanatory lesson is that complacency is deadly. In some ways this lesson was ignored by the elder Watson himself when he chose not to buy the computer pioneering Eckert-Mauchly Company in the early 1950's.[1] Univac, on the other hand is seen to have not learned this lesson until too long after its successful tabulation of the 1952 election returns.[2]

Large organizations growing even larger are apt to become fragmented. The next lesson, then, is that

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[1]Rodgers, Think. p. 199.

[2]See Chapter II (Univac).

divisional or departmental cooperation is essential. Company interests should always assume a position over all others within the organizations. This is in essence the dilemna normally faced by decentralized companies in selecting appropriate financial and management controls.

The final lesson is that company beliefs must always take precedence over goals, policies or procedures. Mr. Watson quotes British economist Walter Bagehot: "Strong beliefs win strong men and then make them stronger." Then Watson adds: "And as men become stronger, so do the organizations to which they belong."[1]

It is appropriate that Thomas Watson, Jr. projects these beliefs and lessons into future IBM operations. He does so by stating that there must be a general recognition of national and public interests as a function of corporate bigness.

More specifically, Mr. Watson asserts that in the modern business environment there has to be continual change, and that today's executive must think as a citizen as well as a businessman. In do doing, his planning must be equally beneficial to employees, stockholders and the country. Businessmen are, therefore, influential public

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[1]Watson, Jr. Beliefs. p. 73.

leaders. The public is continuously insisting on social betterment, and the world demands creativity, imagination, and boldness. It is business management's responsibility to meet those demands.[1]

Specific references to IBM's attempts to meet these challenges and apply its beliefs are discussed in Chapter VI.

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[1] Ibid., p. 78.

IV. ORGANIZATION

The Organization Structure and Rationale

In order to understand IBM as a company, and more important, to understand where the important management positions are, it is useful to view the formal organization structure. Although much of modern management philosophy centers around informal organization patterns without particular regard to organization charts (i.e., Polaroid), IBM uses a formal organization chart to clarify functions and reporting channels for its many employees.

The purpose of this chapter is to describe the organization structure, explore the rationale behind that organization, examine recent organization changes, and pinpoint key positions in the organization so that the individuals filling these positions may be designated.

Exhibit II is a basic portrayal of the IBM formal organization, with reporting resporsibility shown by connecting lines. In typical fashion, IBM is controlled by the board of directors, representing stockholders.

Immediately responsible to the board of directors is the IBM corporate office headed by the Chairman of the Board of Directors, President, Vice Chairman of the Board and the most senior vice president. This is the main operational control group; however, there is also an Executive Committee operating in conjunction with the Corporate Office on matters of long range planning and policy. It consists of the Chairman of the Board, President, Vice Chairman of the Board and is chaired by former IBM President, Albert Williams. It provides an executive forum for Mr. Williams' extensive experience in the corporation as past President.

Reporting directly to the Chairman of the Board is the Management Committee, consisting of three senior vice-presidents, and a special management staff consisting of one senior vice president and two vice presidents. The Management Committee advises the Chairman largely on operational matters. The management staff is concerned primarily with executive resources, management systems, and other matters relating to the execution of management procedures.

Reporting to the President are the Vice President/ Chief Scientist, the Vice President/General Manager of the Data Processing Group (of divisions), and the Vice

President/Group Executive of all other divisions except Research, and Real Estate and Construction divisions. The Data Processing Group contains six divisions responsible for development, manufacturing and marketing of all standard computer or data processing systems. The other group is comprised of divisions responsible for development, manufacturing, and marketing of all non-standard data processing systems plus all non-data processing products. In addition, it also contains the wholly-owned subsidiaries, Science Research Associates and Service Bureau Corporation. The precise functions of these divisions and subsidiaries are discussed in later paragraphs.

Reporting to the Vice Chairman of the Board are the Vice President General Counsel, Vice President Director of the Research Division, and the Vice President Chairman and President of the World Trade Corporation (a wholly-owned subsidiary managing all international affairs). This alignment has been induced primarily because Arthur K. Watson, brother of Chairman Thomas J. Watson, Jr. is the former Chairman of World Trade Corporation and has extensive experience in international matters.

Reporting to the Senior Vice President are the Vice President in charge of the Corporate Operations and

Services Staff, and Senior Vice President in charge of the Corporate Finance and Planning Staff. The Corporate Operations and Services Staff oversees matters concerning administration, commercial development, communications, engineering programming, technology, manufacturing, marketing, personnel, programming, service, standards, real estate and construction. It also houses the corporate secretary and his staff. The Corporate Finance and Planning Staff is concerned with all financial, planning and internal data processing systems matters. It is the staff in which the Controller, Treasurer and Chief Economist operate. As is often the case, both staffs cross operational division lines, providing continuity and access to vital information.

The various IBM divisions and subsidiaries form the operational functions of the company. All research, product development, manufacturing, marketing, customer services and facilities development matters are executed in these organizational entities. Descriptions of their respective functions are as follows:[1]

THE ADVANCED SYSTEMS DEVELOPMENT DIVISION explores product and business areas new to IBM, establishes their

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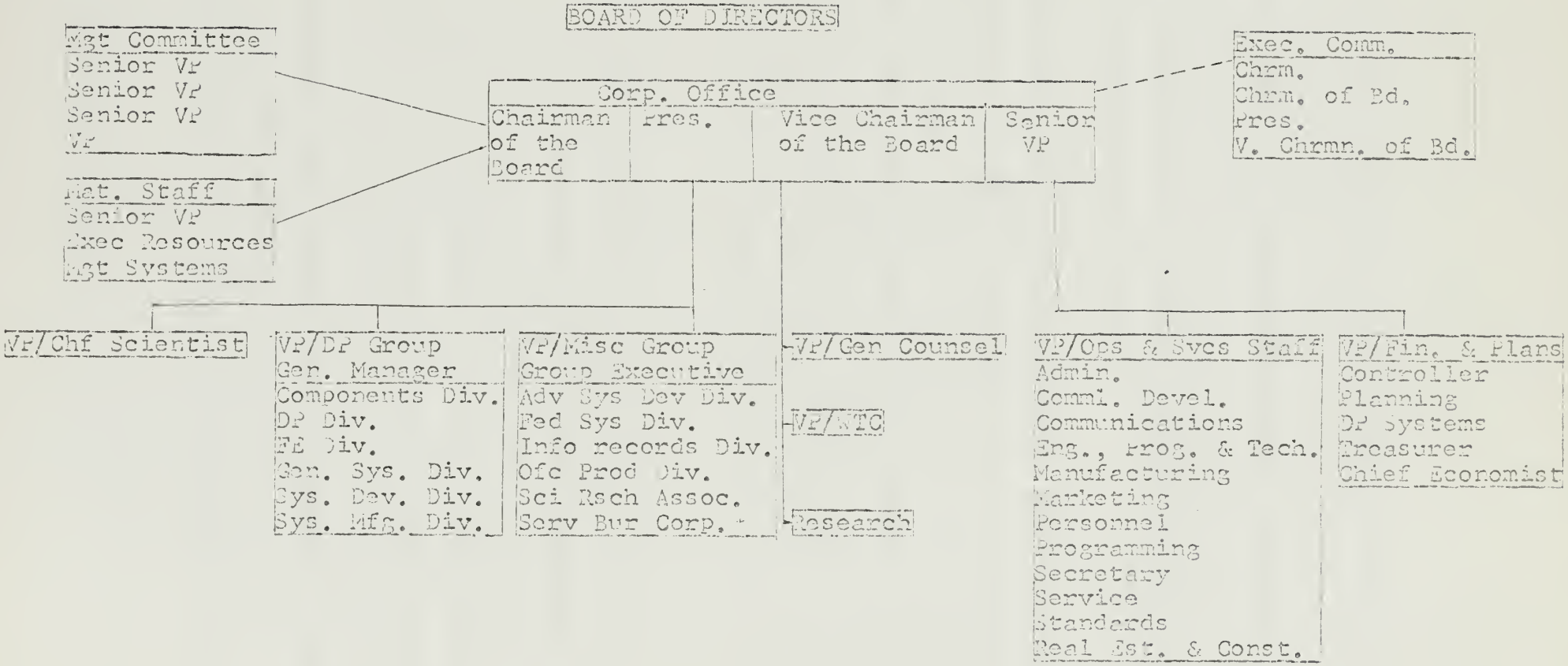
[1] IBM Annual Report 1968, p. 37.

EXHIBIT II

IBM ORGANIZATION CHART



Source: IBM Corporate Organization Chart, November 1969.

potential value, and then transfers product responsibility to the cognizant operating group (i.e., Data Processing Group) or division for further development, manufacturing and marketing. It is related to the research effort, but is oriented primarily to potential markets and customer requirements.

THE COMPONENTS DIVISION develops, manufactures and purchases electronic components used in IBM data processing systems. It is this division which would be responsible for drawing specifications for and purchasing of electronics components such as transistors and modular microcircuitory from other suppliers, foreign and domestic. The Components Division is part of the Data Processing Group.

THE DATA PROCESSING DIVISION markets the full IBM line of information-handling systems, equipment and supplies through branch offices throughout the United States. The only exceptions to this array of product responsibility are the low-cost data processing equipments, such as unit record (punched card) equipment, card input/output machines, data acquisition and control equipment, and the newly-announced, small System/3. The Data Processing Division is a component of the Data Processing Group.

THE FEDERAL SYSTEMS DIVISION concentrates on advanced technology and systems for ground-based, airborne and space-borne information-handling and control needs of the U.S. Government. It is this division which is participating actively in the national space program.

THE FIELD ENGINEERING DIVISION is a part of the Data Processing Group. It provides maintenance and related services for IBM's domestic information handling systems and equipment. All repairs, maintenance and updating of customers equipment under contract are accomplished by this division through the various local branch offices.

THE GENERAL SYSTEMS DIVISION is another member of the Data Processing Group and is responsible for manufacturing, development and programming activities in the area of the low-cost data processing equipment not managed by the Data Processing Division. This division is meant to place a special focus on the "low end" of the product spectrum, which in many cases benefit from marketing techniques and expertise different from the larger computer systems.[1]

THE INFORMATION RECORDS DIVISION develops,

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[1] IBM Data Processing Group Letter of November 5, 1969 by R. A. Russack DPG#4 11/5/69.

manufactures and markets data processing cards and paper forms, magnetic tape and other consumable products used in information-handling systems. Its product line also includes systems and services for the storage, retrieval, distribution and display of business records. This division may be more aptly described as being in the supplies business.

THE OFFICE PRODUCTS DIVISION develops, manufactures, markets and services electric typewriters, magnetic typewriters, dictation equipment, cold-type publication composing equipment, and related supplies. These are all the hardward products not directly related to computers and data processing systems.

THE REAL ESTATE AND CONSTRUCTION DIVISION arranges for the design, construction, purchase or lease of facilities, including the planning and location of sites. It has cognizance over plants and laboratories in 25 U.S. cities plus 17 plants in Argentina, Brazil, Canada, Columbia, France, West Germany, India, Italy, Japan, Mexico, The Netherlands, Sweden and the United Kingdom. During 1968 this division was managing construction of 14 new foreign and domestic facilities, and expansion of 19 others. The Real Estate and Construction Division has placed branch offices in virtually every major city in

the U.S. and in many small cities. This is the only division operating in a staff environment (Corporate Operations and Services Staff) because of the centralized requirement of coordinated facilities development and capital investment.

THE RESEARCH DIVISION is independent of any other organizational element and reports directly to the Vice Chairman of the Board of Directors. It develops advanced concepts, technologies, devices and computer applications to provide new and better solutions to customers' information-handling requirements. IBM consistently devotes considerable attention and funding to this division, which is so vital in a rapidly advancing technology and competitive environment.

THE SYSTEMS DEVELOPMENT DIVISION develops, through a multinational effort, IBM's regular product line of information-handling systems and equipment, including system-related computer programming support. It is a Data Processing Group component.

THE SYSTEMS MANUFACTURING DIVISION is the last member of the Data Processing Group. It manufactures all equipment and systems in the IBM information-handling product line.

THE IBM WORLD TRADE CORPORATION is a wholly-owned subsidiary formed in 1950 for the purpose of managing all non-U.S. transactions and products directly or through other WTC subsidiaries. The Corporation now operates in 106 foreign countries and is attempting to do so using national residents of the respective countries as much as possible.

SCIENCE RESEARCH ASSOCIATES, INC. is a subsidiary which develops and publishes a wide range of learning and guidance materials and intelligence, aptitude and achievement tests for schools, government and industry. It was acquired in February, 1964 for the purpose of giving a more substantial base to IBM's ambitious customer education program.

THE SERVICE BUREAU CORPORATION is another wholly-owned subsidiary formed in 1957, offering domestic organizations business data processing services as well as computer programming services on a daily, weekly, monthly or one-job basis. This corporation is presently the most active element in the promising area of computer time-sharing by remote customers on an on-line basis.

The marketing of all IBM products in the U.S. takes place through an interesting structure, calculated

to make maximum use of marketing and customer industry expertise within IBM. Since 1961, IBM has been specializing sales efforts by customer industry type (i.e., banking, transportation, manufacturing, insurance, government administration and education). In some larger metropolitan areas there are separate branch organizations for groups of these customer types.

The marketing structure is basically broken down into five regions, three of which are geographic and the remaining two are by industry type. The geographic division as into Eastern, Midwestern and Western Regions. These regions are further divided into districts which contain branch offices in the various cities of the districts. The essential marketing entity is the branch, which tries to maintain close liaison with its customers through its various industry-specialized marketing representatives.

The other two regions are the Government, Education and Medicine Region, and the Commercial Region, which includes utilities, airlines, stock markets and other large public use industries. All other industries are covered by the geographic regions, except federal government scientific development which is covered independently by the Federal Systems Divisions.

The Government, Education and Medicine Region operates overseas as well as in the U.S., providing marketing services for the World Trade Corporation in these areas.[1]

It is obvious that the emphasis in this structure is to provide the maximum concentration of IBM experience to given market areas. In addition, IBM marketing effort is very fluid in bringing the most knowledge to bear on specific marketing situations across organizational lines when required.

Recent Organizational Changes.

Within recent years, several changes have taken place in the IBM organization which reflect modern thinking within the company. These changes have come about for various reasons, but each one was inspired by motivations which may give insight into the IBM corporate character.

As previously mentioned, the consent decree of 1956 signed by IBM in answer to charges that IBM was monopolistic and possibly in restraint of trade had profound effects on IBM. As a result of that action, IBM segregated most of its data processing services for customers and formed the wholly-owned subsidiary,

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[1]Kenneth Allen, Private interview held at IBM Information Services, Washington, December 1969.

Service Bureau Corporation. IBM now performs no work for customers, but relies on the SBC for this function. Actually, in many instances, SBC and IBM become competitors when a potential customer is undecided as to whether to purchase or lease equipment, or hire another company to do the job.

With the advent of computers which can process many jobs concurrently and communicate with small remote terminals while processing, computer services have become feasible for many small businesses which could not previously afford them. It is in this area, plus contract computer programming services, that the SBC is making its greatest strides to date. It is also this area, however, for which IBM and SBC are being criticized by some competitors who claim that SBC is obtaining equipment and some systems expertise from IBM at a cost below that of competitors. IBM and SBC, of course, deny the charge, and the issue has not yet been decided. In any event, IBM's attempts to satisfy judicial challenges in 1956 are now being challenged again. As a result, all real-time and on-line data communications applications have now been turned over to the SBC and rate structures have been reexamined to insure non-competitive pricing does not exist.

About 1960 IBM realized that the data processing

marketing area had become too large for the general salesman to effectively manage, just as the medical profession now spawns fewer general practitioners. So local branch offices were broken down into industry specialty areas, with a marketing team dedicated to each given industry type. About 1965 this specialization philosophy underwent further refinement. In metropolitan areas separate branch offices were established for certain industry types and the geographical regional marketing structure was further split into the Commercial Region and Government, Education and Medical Region.

These changes reflected the IBM attitude that since computers must be structured to perform a great share of a customer's tasks in a way acceptable to the customer, the sales representative must become intimately familiar with the workings of not only the customer's company, but also its entire industrial environment. This is in consonance with IBM's long standing emphasis on intensive marketing techniques emphasizing customer service.

In 1964 IBM established the Executive Committee, composed of Chairman of the Board, Thomas J. Watson, Jr., President, T. Vincent Learson, Vice Chairman, Arthur

K. Watson and Executive Committee Chairman, Albert Williams.[1] Mr. Williams spent 28 active years with IBM culminating with his term as corporation President from 1961 to 1966. Because of his experience and knowledge of IBM, he was requested to remain active in the organization (he is also a director) through the Executive Committee.[2] It is interesting that this group would be formed to retain the counsel of one man who was not widely known for dynamic and personal influence on corporate character.

Also in 1964, IBM acquired Systems Research Associates as a subsidiary.[3] Although the IBM educational system for employees and customers had for years set the pace in modern industry, IBM felt that the area of testing and instructing in modern universities was of a highly technical nature. SRA provided the degree of professionalism required. Among the obvious purposes for SRA's alliance with IBM is the increasingly important area of proper selection and

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[1]"IBM's $5,000,000,000 Gamble," T. A. Wise. Fortune. September 1966, p. 118.

[2]"Momentus Days at IBM," Fortune, March 1966, p. 56.

[3]Standard and Poors Corporation Descriptions p. 3699.

training of people to do the many highly technical jobs in IBM and in customers' organizations. Because of the ever greater demand for people in our industrial society, emphasis on personnel selection and education certainly seems to be well founded. It is not a new area of enthusiasm with IBM.

Most recently (November 1969) IBM formed the General Systems Division which places separate management responsibility on development, manufacture and programming activities relating to low-cost data processing equipment. This is an effort to differentiate between the large and medium scale computing systems and the small systems and peripheral devices used by small business customers, in the realization that the needs of these customers are indeed different. This differentiation will help to ensure that these low-cost products are not designed with features not required or wanted by the small customer, and hence will save him money.

It can be readily seen that most of the recent changes mentioned above relate directly to IBM's customers in an effort to render better support. Of the remaining changes, one relates to judicial action and the other to executive leadership. Legal confrontation will most certainly continue to shape IBM philosophy for many years

to come, and it is expected that IBM will be as accommodating to the courts as is feasible. It is encouraging to see that IBM at times builds its orgarization around people and not the converse. The Executive Committee established for Mr. Williams' and Arthur K. Watson's elevation to Vice Chairman of the Board (a new position) in 1966,[1] with responsibility over areas relative to his greatest experience, both attest to that philosophy.

Key Positions

The corporate organization chart in Exhibit II furnishes a good base for selecting the IBM executives to be examined in Chapter V. Executives in charge of nearly all captions on the chart have been designated as appropriate. The total number of executives studied is 43. Examination of the organization chart reveals more than 43 captions. In some instances one executive is performing in more than one capacity on the chart.

The executives coming under this study are designated by functional area rather than name as follows:

All members of the Corporate Office group and the Executive Committee; all members of the Management

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[1]World Who's Who in Commerce and Industry, Marquis, 1968-69, p. 1444.

Committee and the Management Staff; the Chief Scientist/Vice President; the Data Processing Group General Manager/Vice President and all Division Presidents or General Managers within the group; the Group Executive/Vice President for the "Miscellaneous" group and all its Division Presidents or General Managers; the Chairman of the Board of the Service Bureau Corporation; the General Counsel/Vice President; the President of the World Trade Corporation/Vice President; the Vice President in Charge of Research; the Vice President in Charge of the Corporate Operations and Services Staff and executives in charge of all staff functions listed under him; the Senior Vice President in charge of the Corporate Finance and Planning Staff and executives in charge of all staff functions listed under him. The total number of positions designated is 48, while the number of individuals totals 43.

It may be noted that all members of the Board of Directors not employed by IBM as officers have been omitted from the study because they come from outside the company and their characteristics are not likely to have come under the influence of IBM during their more formative years, as is the case with most IBM career executives. The same condition applies to the President of Science

Research Associates, Inc., because that firm, along with its executives, was acquired externally by IBM.

We now have the basic ground work to proceed with the examination of these 43 men who have guided IBM so successfully during recent years.

V. MANAGERS

Characteristics and Standards.

In the last chapter the various management positions to be analyzed were identified. For specific analytical purposes, the individuals currently filling each one of these positions have also been identified through the courtesy of IBM,[1] Who's Who in Commerce and Industry,[2] and Poor's Register of Corporations, Directors and Executives.[3] Names of these individuals in this analysis serve no useful purpose; therefore, they are omitted.

The standard or "control group" against which IBM management personal characteristic data are compared is Top Management.[4] This book has been compiled under the auspices of the Stanford University Graduate School of Business and contains a survey of the most significant

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[1]Letter from Donald H. Reck, IBM Information Administrator, Armonk, N.Y., Dec. 11, 1969.

[2]Marquis, World Who's Who in Commerce and Industry. (New York: Marquis Who's Who, 1968).

[3]Standard and Poor. Poor's Register of Corporations, Directors and Executives in U.S. and Canada. (New York: Standard and Poors Corp., 1969).

[4]Holden, Pederson and Germane. Top Management.

characteristics of 310 top management personnel. These management personnel are employed by 15 different corporations from 15 different industries. Although the book does not identify these corporations, each is purported to be a leader in its respective industry.

As a statistical consideration, it may be noted that IBM is not one of the 15 firms constituting the Top Management survey.[1]

The categories of characteristics used in the survey are largely those extracted from IBM executive biographical data. These characteristics are: median and average age, median and average tenure with the firm, number of collegiate degrees held, most frequent starting job functions, primary job functions, last job function prior to most recent promotion, multi-functional job experience, and most frequent routes to top management promotions. In addition, certain characteristics within the IBM executive group will be discussed.

Management Statistics.

1. AGE. The average of the survey group is 56 years and the median age is 57. Both the average and median age

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[1]Letter from Carlton A. Pederson, Professor of Business Management and Director of the Stanford-Sloan Program, Stanford University, Dec. 8, 1969.

of the IBM top management group is 51. While not a startling difference, it does indicate that IBM tends to value youth and remaining productive management potential at least as highly as other successful industrial firms.

2. TENURE. The survey group showed an average tenure of 29 years and median tenure of 30 years. Similar figures for IBM are 24.5 and 23 years, respectively. This tends to reinforce the previous conclusion, but adds the ingredient of promotion speed. Apparently IBM tends to have advanced its executives faster than the surveyed group, and not merely hired them at a younger age.

3. ADVANCED EDUCATION. In this area, 13 per cent of surveyed executives held no college degree, while only 7 per cent of IBM executives had none. Fifty-five per cent of the survey group held one degree, as compared to 53.5 per cent of the IBM group. Similarly, 24 per cent of the surveyed executives held two degrees to IBM's 25.5 per cent. Three or more degrees were held by 8 per cent of the survey group and 14 per cent of IBM executives. The only variation here is that IBM tends to have more executives at the high extreme and fewer at the low extreme (no degrees). There is a very close correlation between both groups for those executives having one and two degrees.

EXHIBIT III

EXECUTIVE CHARACTERISTICS

	Survey	IBM
Sample size	310	43
Average age	56	51
Median age	57	51
Average tenure	29	24.5
Median tenure	30	23
Education - degrees		
None	13%	7%
One	55%	53.5%
Two	24%	25.5%
Three	8%	14%

Source: Holden, Pederson and Germane, Top Management. pp. 233-55.
Letter from D. H. Reck, December 11, 1969.

While the Top Management survey did not aver to institutions by which degrees were conferred, it is interesting to note that within the IBM group, 16 per cent received at least one degree from Harvard University, 37 per cent received at least one degree from an Ivy League university, and 51 per cent received at least one degree from what would normally be called an "Eastern" institution. It is difficult to draw a conclusion from these statistics, but two hypotheses come to mind: that "Eastern" or Ivy League schools have historically equipped managers more adequately than others for IBM's purposes; or that IBM's historical roots and corporate power are located in the eastern United States, creating an affinity between IBM and eastern graduates. These hypotheses are offered for the reader's speculation only, and may not be unique to IBM.

4. STARTING JOB FUNCTIONS. The functional area in which executives begin their career with an organization is sometimes useful in viewing selection philosophy and company attitudes toward personnel resources.

The survey group showed that most executives entered their respective businesses in the functional areas of production, engineering, accounting and finance.

Somewhat lower on the list, but also significant were the areas of research and marketing.

An analysis of the IBM group reveals the majority of all executives (56 per cent) entering the firm in the marketing areas. Research is the next most common area of entry for IBM executives (18.5 per cent), but it should be noted that some of that segment entered the organization as mature professionals, later in their careers. No other functional areas are significantly frequent as starting positions for IBM executives, as can be seen by the percentages in Exhibit IV.

This overwhelming tendency toward marketing bears out the senior Watson's legacy to the organization. It is the single most conspicuous characteristic unique to IBM.

5. PRIMARY JOB FUNCTIONS. While executives are progressing in their careers, they are most often assigned to one function more than any other. This is the primary job function.

The most frequent primary functional occurrence in the survey group by far was production (35 per cent), with marketing (19 per cent) and accounting (17 per cent) placing a distant second and third place. We can see a

trend toward production in these firms as a common management career attern, and away from engineering and accounting as these executives progressed from starting jobs into primary functions. There is also a slight rise in the proportion of executives entering marketing after starting in another functional area.

On the other hand, IBM executives seem to have continued in the marketing area for the most part (49 per cent). The next most predominant function remains research. Exhibit IV shows a slight trend toward production and very low frequencies in those areas as starting jobs. Some who started in marketing branched into these functions as primary career specialities. The indication here is that marketing is a vital prerequisite to career development in IBM. It continues to be the most frequent area throughout most executives' careers, but some others have branched into production and finance after having gained an appreciation for the marketing considerations which are so dominant in IBM's business philosophy.

6. JOB FUNCTION PRIOR TO MOST RECENT PROMOTION. The trend among the surveyed executives continues to gravitate toward production (45 per cent) and marketing (27 per cent), during the later stages of their careers. Conversely, Exhibit IV shows a trend away from engineering,

research, and finance. This confirms what one might logically suppose; that production is one of the most vital functions in an industrial corporation, with marketing also playing an important role.

Within IBM, executives have been promoted to their present positions mostly from the marketing area in roughly the same proportion in which they developed their entire careers. All other functional areas exist as stepping stones to executive positions in about the same relative frequency as primary functions.

7. MULTIFUNCTIONAL EXPERIENCE. Another indicator of the character of corporate management is whether their careers have developed in a single function or multiple functions. Single function experience development indicates that an organization considers a function(s) or such overriding importance that significant exposure to other areas is less important than depth of experience in that favored function.

Among executives in the survey group, 44.9 per cent had single function experience and 55.1 per cent worked in more than one functional area; roughly half and half. In IBM 74.5 per cent of all executives stayed in a single function prior to becoming a company officer, with only 25.5 per cent working in multiple functions.

These statistics, of course, corroborate earlier indications of IBM's history of emphasis on the marketplace.

8. SUMMARY OF MAJOR ROUTES TO THE TOP. Generally, executives in the survey group progressed to corporate offices most often in the area of technology and production. The next most frequently travelled path was marketing, followed by accounting, finance and legal areas.

As we have seen, the most well traversed executive route in IBM is marketing, followed at some distance by production and finance.

Other IBM Management Characteristics.

Line versus staff experience is a frequent subject of discussion with regard to top management character. Of all surveyed executives, 72 per cent progressed through their careers in line functions. The IBM pattern shows line experience at about 82 per cent, with only occasional exposure of these executives to staff functions.

The inference here is that IBM values the executive who has had experience with operational areas even more highly than successful industrial corporations in general. Again, this characteristic is manifested

primarily in the marketing area.

Only about 39 per cent of IBM executives have worked for other organizations. While no similar statistic was extracted in the Top Management survey, this percentage is not high when considering the great deal of job mobility in some other industrial areas such as oil companies, and the rate at which various marketing organizations change personnel. The inference here is that there is substantial loyalty among IBM executives to their corporation.

This research has shown that there is a great deal of homogeneity among IBM executives. Most have one or two college degrees, and many from eastern universities. Unwritten standards of dress and conduct have long held an important place in IBM's history.[1] The great predominance of executive experience is singularly in the area of marketing. Formal and continuing education is held in high regard.[2] Over half of all executives have served in the armed forces, including Thomas J. Watson who was an Air Force Colonel, and Arthur K. Watson, who was an Army Major, both serving extensively overseas during and after World War II.[3]

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[1] Rodgers. Think. p. 112.

[2] Watson, IBM Beliefs. p. 61.

[3] Rodgers. Think. p. 222.

EXHIBIT IV

EXECUTIVE EXPERIENCE

	STARTING		PRIMARY		LAST	
	Survey	IBM	Survey	IBM	Survey	IBM
Production	22	2.3	35	7.0	45	9.3
Engineering	21	9.3	13	9.3	11	7.0
R & D	13	18.5	7	13.8	3	13.8
Employee & Public Relations	4	2.3	6	2.3	0	7.0
Sales & Marketing	14	56.0	19	49.0	27	48.9
Accounting & Finance	21	2.3	17	7.0	12	7.0
Legal & Other	5	9.3	3	11.6	2	7.0

Note: All figures are percentages.

Source: Holden, Pederson and Germane. Top Management. pp. 233-55.
Letter from D. M. Beck, Dec. 11, 1969.

Nearly 63 per cent of all executives studied are between 48 and 59 years of age. All are active in local civic and social organizations in their respective residential areas.

In one respect homogeneity may be regarded as restrictive to management in much the manner of in-breeding. This is homogeneity in its strictest sense, however. Homogeneity to the extent seen in the IBM executive group is most probably beneficial in that it promotes singularity of objective and motivation. Executive appreciation of corporate goals is essential to management unity, enlightened morale, and productivity of individuals throughout the organization.

There is, however, one remark often made by Chairman Watson which may tend to belie further amplification of this philosophy of homogeneity. He says, "We are always looking for more 'wild ducks'."[1] This statement indicates a view of homogeneity tempered by a perceptive desire for innovativeness throughout the organization. Innovation has long been a key to entrepreneurial success; however, Mr. Watson undoubtedly sees it as increasing in importance with the upsurge in the dynamics of the international society and marketplace.

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[1] Watson, IBM Beliefs, p. 27.

VI. THE FUTURE

Emerging Symptoms.

The question of top management procurement ultimately resides in the broader area of recruiting and selection of personnel. IBM, because of its beliefs in obtaining and retaining good people, is particularly concerned, as is all modern management.

In some circles, people are being capitalized as an asset on the balance sheet to be offset by fluctuations in owners' equity. Likewise, some income statements show monetary gains and losses in personnel valuation. This extent of personnel emphasis has been recently furthered by the University of Michigan team of R. Lee Brummet and Rensis Likert in their experiments at the R. G. Barry Corporation.[1] It is logical to look for expansion of this concept into the executive management area, including quantitative evaluations of both individuals and events.

The above example points up the value being placed

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[1] "How Much is Help Worth?", Business Week, December 29, 1969, p. 37.

on people in general and managers in particular by contemporary American businesses. Management personnel are now being looked upon as a scarce resource which must be competed for and conserved. Preparations for the future in this area will require better use of talent, more competitive work environments, interesting challenges and consistent rewards for efforts.[1]

Factors involved in this evolution are the national birthrate decline, rational growth in numbers and size of companies; increasing business complexity and greater demands from outside industry (i.e., government, social organizations, and international aid). To live with these restrictions, businesses will have to either reduce the number of executives required per function, identify and hold only good talent, increase the future supply of executive talent through training and experience, or upgrade their personnel functions, or most likely do all four.[2]

Ingredients in the personnel area which must be developed or enhanced to remain competitive in the field of executive talent are the following: manpower assessment,

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[1]Arch Patton. "The Coming Scramble for Executive Talent." Harvard Business Review, May-June 1967, p. 155.

[2]Ibid., p. 169.

promotion process analysis and a thorough skills inventory, whether it is capitalized or not.

The Yankelovich Survey of "The top 500" industrial companies as determined by Fortune shows some profound phenomena.[1] Basically, these phenomena result in a true generation gap in business management emerging from the impatience of young managers and the resulting insecurity of the older executives. This insecurity stems from the younger men's unwillingness to work their way up in the business hierarchy, and their lack of motivation by money and position.

The market for people and talent today is so demanding that high performers are showing a great deal of mobility among all businesses. The new motivators are now recognition, satisfaction, responsibility, and challenge. Many young people see these motivators more readily accessible outside the business community where there is an opportunity for participation in, and formulation of, change. In order to satisfy these people and attract them to business management careers, companies are now having to allow young people the opportunity to run and influence their organizations

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[1]Robert S. Diamond. "What Business Thinks." Fortune. December 1969, p. 115.

and show them that the business organization is changeable. In many cases, companies are reorganizing for this specific purpose.[1]

Response to Social Demands.

The volatile nature of the American social climate today is having great effects on business. Young people are more aware of domestic and world social problems than every before. As a result, industry has realized that it must be in tune with the same social factors in order to aboid possible alienation by new generations, and to attract and utilize the greatest amoung of talent possible from those generations.

Specific issues around which the current social demands are centered involve humanitarian equality, environmental conditions, war, and in general, the quality of life.

IBM has responded to these demands in various ways. In the area of equal employment opportunity, IBM is engaged in multiple programs involving employment, training and community rehabilitation on its own and in cooperation with other organizations. It actively recruits in a number of Negro colleges, and attempts to hire marginally

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[1] Ibid., p. 116.

qualified employees on the basis of desire and initiative. Under the auspices of the National Alliance of Businessmen, IBM is conducting a program to employ and train "hard core" employables in four urban areas.[1]

More specifically, IBM opened a manufacturing plant in the Bedford-Stuyvesant ghetto area of Brooklyn in 1968 which produces electronic cables and power supplies. The plant employs about 500 local residents. IBM is also sponsoring a "Street Academy" training program for disadvantaged youths to prepare them for college entrance.[2]

IBM has been applying its talents to other socially beneficial areas as follows:[3]

The subsidiary, Science Research Associates, is conducting pilot research and field testing of DISTAR, a new learning system for the educationally disadvantaged and below standard student. Six Chicago schools are being supplied with material and personnel to consult with teachers and evaluate the system's progress.

IBM in Geneva, Switzerland has been working with the World Health Organization to set up a bio-medical information service in 58 countries.

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[1]Letter from D. H. Reck. Dec. 11, 1969.

[2]Ibid.

[3]Ibid.

A water pollution system has been established in Montpellier, France, and weather analysis is being conducted at the IBM Scientific Center, including air pollution monitoring and model-building features.

IBM has developed a system to optimize the use and distribution of police manpower. It has also developed another system to maintain status of police vehicles and their sector assignments in New York City in order to facilitate faster response to emergencies.

An automatic fare collection system has been established by IBM for the Bay Area Rapid Transit District (BART) in San Francisco, California, using magnetic credit cards instead of tokens.

IBM's Advanced Systems Development Division is working with the Urban Housing Model for the National Urban Coalition's Task Force on Urban Housing, Development and Investment. This model considers cost of land, acquisition, construction, investment, and return on investments.

It is apparent from the above projects that IBM is striving to make itself as attractive as possible as a socially conscious and progressive organization, as well as an active participant in the shaping of our future lives and environment. It is this type of consciousness

which is being shown by many leading industrial organizations today. As a practical matter, it must be stated that in our capitalistic system, the motivations for such actions may be traced back to profits and satisfaction of stockholders through better management and more competent executives.

Response to Future Managers.

The foregoing remarks regarding social phenomena have been most often referred to as "anti-establishment" sentiments among many young people. Where this relates to business, there is a common feeling that most college graduates are not attracted to business careers.[1]

Surprisingly, IBM management finds little evidence of these aversions in young people. However, IBM specifies that they are hiring many young people, most of whom have new attitudes, expectations, ideals and a desire to change things for the better. This reflection is in accord with previous findings of this research.

Chairman Watson made the following comments to IBM management in December, 1969 on this very subject:

> If we want to lead people like this, we must demonstrate that we do not fear change,

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[1] "What Business Thinks," p. 115.

> but welcome it as a way of life. The truth is, few institutions are more radical than the truly dynamic business corporation. Change is its life blood. Most great companies change as they grow, or else they do not long survive.
>
> Yet in the contacts we have with young people, we find many of them do not perceive change as a dynamic factor in business. Too often they don't see beyond the web of rules and jargon that characterize large organizations. They don't see us responding to the needs of our age.
>
> As managers, our attitude toward such newcomers can make a big difference. If a new employee comes through with an idea, don't just tell him we've looked at that before and rejected it. Circumstances may have changed. The new employee may have new factors or a different approach. It is our job always to be on the lookout for ideas that can be developed into constructive change.
>
> Except for the basic beliefs, we are prepared to change almost everything about this company. This is the message we need to get across to the new generation. Your attitude will tell the story better than any words.[1]

It is apparent that there is emphasis on the subject of attracting bright, young people within the IBM organization. In addition, IBM conducts public affairs seminars every year with college students who are employed for the summer by IBM in order to obtain rapport and feedback on

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[1]Letter from Walter J. Pedicord, IBM Vice President, Personnel, Armouk, N. Y., January 6, 1970.

adaptation to the attitudes and values of young people.[1] These seminars attracted 1500 students in 1969.

Early in 1969, IBM sponsored the first annual student symposium entitled "The Corporation, 1970." Invited were 40 student leaders from various U.S. campuses to confer with various IBM executives and guests from other areas of business, universities and scientific groups. The purpose of the symposium was to learn first-hand the students views on subjects vitally important to them and to the American corporation. Areas discussed were: technology and society, the corporate role in urban affairs, corporations and government, corporate life on the inside, and corporate involvement overseas.[2]

Although no new truths were formulated or advanced, the discussions were candid and intense. The major goal was achieved, in that two generations met and listened to each other, perhaps creating better understanding.

It is the idea that both the corporation and the potential future executive now attending college need to become better understood that is most important. Understanding and mutual appreciation between these two groups which are so essential to our society is the only counterforce to continued polarization.

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[1] Ibid.

[2] "At Think Seminar, Students, Executives Parry and Probe." Think Magazine. November-December 1969, p. 18.

Aside from social attitudes and the broad considerations affecting the character of IBM's future executives, there is perhaps a more subtle and immediate change taking place in the IBM organization. It is the slight drift from the historically pervasive marketing emphasis toward technology.

IBM has always been technologically adequate, but never a real pioneer in the hardware area. As long as the equipment has been competitively satisfactory, IBM successfully chose to devote its efforts to salesmanship and thorough customer support.[1]

In 1964, IBM gambled that an entire new range of computers (System/360), superseding nearly all others in its own product line as well as those of its competitors, would be successful enough to profitably justify the five billion dollar investment required. The significance of the decision to go ahead with the project is not so much that it has been successful to date, but that it was made at the recommendation primarily of the System's developers and not its prospective sales managers.[2] In so doing, IBM overlayed its traditional marketing disciplines with disciplines of science.

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[1] "IBM's Tough Test." Business Week. December 20, 1969.

[2] Wise. "IBM's Gamble," p. 120.

Several notable characteristics were brought about in IBM as a result of the System/360 decision. For the first time IBM became a major manufacturer instead of an assumbler and marketer. It became the world's largest producer of integrated circuitry. For the first time the domestic product line was identical to that marketing in other countries through the World Trade Organization. There have been three reorganizations actions since 1960, all contributing to the elevation of technically oriented managers in the corporation hierarchy. And finally, IBM's consistently healthy cash position was severely reduced because of the unprecedented need to finance expansion.[1]

Although this action was precedent-setting within IBM, it is not unique to the industry. One of IBM's most dynamic and successful competitors, Control Data Corporation has been concentrating on technology and engineering since its inception in 1956. Primary developer of the successful CDC 6600 and the world's largest computer, the CDC 7600 is Seymour Cray, Senior Vice President at Control Data. Aside from Chairman William Norris, he is probably the most influential individual in the Control Data

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[1] Ibid., p. 118.

orgarization, and is highly respected throughout the computer field as a technician and innovator.[1]

IBM's decision to market the System/360 has broader implications than just the demands of building and marketing the System. Information systems users are becoming increasingly competent and discerning in their use of equipment. They require less "hand-holding" and more hardware efficiency. They are becoming more concerned with costs and effectiveness. IBM is being forced to respond with greater technical competence in product design, marketing, and ultimately, top level management.

IBM management is changing. Specifically, it is becoming more oriented toward technology and engineering.

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[1] "Control Data Tackles the Giant," p. 148.

VII. CONCLUSION

This research thesis has been an attempt to characterize the top management of one of America's most successful modern day industrial corporations. Indicators of IBM's success have been documented statistically and testimonially. Reasons for that success have never been specifically determined, as they are certainly many and interdependent.

There remains, however, an assumption in business that whether a company seemingly thrives over a long period because of a healthy market, good cash position, or good fortune, there must be sound management or the other factors would have only temporary effects. And so it is that by examining top management characteristics, one may gain valuable insight into how a company operates and perhaps why it is so successful.

The central question of this research is to pinpoint the characteristics possessed by IBM top management personnel that may contribute to IBM's extraordinary record, current status and future prospects.

Subsidiary questions pursued in order to support the main question are: What evidence is there of IBM success and what constitutes that success? What does the IBM organization structure look like? What are the key executive positions in that organization? What are the general characteristics of the executives occupying these positions? What are the executive characteristics of similar companies and why have some been similarly successful while others have not? What will be IBM's top management reactions to changing social attitudes?

In Chapter II, IBM's success was established using recent historical financial statistics from within the company, and by comparison to top industrial corporations according to Fortune. Also certain textual comments are quoted to show that IBM is highly regarded in the industrial community as an example of a successful and well managed business organization.

The IBM organization is seen to be carefully structured to clarify lines of communications and authority. The marketing organization is highly segregated according to various markets served. The emphasis on marketing is apparent in this organization which is also broken down into product or service

category. Key executive positions are generally those which bear the titles of president, vice president or director, and extend from heads of staffs and operating divisions up through chairman of the board. Board directors who do not serve as company officers are not included.

Examination of other similar companies is also useful as a comparative backdrop. Polaroid is similarly characterized by rapid technological growth, perpetuation of a small company atmosphere, heavy emphasis on marketing, and strong influence by one man, Edwin Land. Another successful company, Xerox, who has not until recently, become an IBM competitor, is typical of the rapid growth, marketing-oriented organization. Within IBM's marketplace there are Control Data Corporation and Univac. Univac provided a noteworthy example of the folly of technological expertise at the expense of market penetration, management fragmentation, and complacency. Control Data, on the other hand, is drawing ever closer to IBM in appearance as it moves toward marketing while IBM moves toward technology and engineering.

In analyzing IBM's top management characteristics the principle standard is the Stanford University sponsored study of 15 leading industrial companies.[1] Several

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[1]Holden, Pederson and Germane. Top Management. pp. 233-55.

conclusions are derived from the biographical data on IBM's 43 top executives:

IBM executives are slightly younger than the Stanford survey sample. They are equally, if not more highly educated, with a higher percentage having more than two college degrees. A notable segment of IBM executives received their advanced educations in well established eastern institutions.

The greatest departure from the Stanford survey sample is in the area of job experience. Most IBM top executives have spent their entire careers with IBM and in one functional area. Normally that functional area is marketing. This is in sharp contrast with the survey which showed less functional specialization, more experience with other firms and a disposition toward the production function as a frequent path to the top.

Upon further examination of recent events within IBM, it is seen that marketing emphasis is giving way to technological expertise. Also, because of IBM's apparent vulnerability in the courts, it is becoming well staffed with legal talent and reputation in the persons of Burke Marshall, Nicholas de B. Katzenbach and Cyrus Vance.

Other than the prevailing attitude toward marketing, it is evident that top IBM executives are largely similar to those of other successful industrial corporations. This is to be expected in a modern competitive environment. Beyond that, IBM executives are largely homogeneous in training and background, leading to uniformity of purpose, beliefs, and goals.

In examining IBM's history, it is apparent that a sense of morality, competitiveness and image perpetuation have played strong roles in pursuading IBM managers to succeed. Tradition has also played an important role, but the convertional hard traditions of Thomas J. Watson are now seen giving way to more flexible beliefs conforming to the demands of society.

Recruitment of the potential top managers of the future is presenting a dilemma to IBM as well as other business firms. IBM has not solved this problem, but is taking measures to make itself socially responsive and more attractive to the executives of tomorrow. And because the way is not yet clear as to what society's demands are to be, IBM is engaging today's young people to promote better two-way understanding and appreciation.

In a closer look at IBM top management, it can be seen that there remains an overriding competitive spirit

embodying hard-hitting marketing tactics, a demand for executive loyalty, and a large corporate ego.[1] IBM President, T. V. Learson is demanding of all his subordinates and intolerant of dissention.[2] On the subject of corporate ego, Thomas Watson Jr. had said that IBM always acted bigger, more sophisticated and more successful than the balance sheet showed.[3] This is an expression of the original Watson evangelism.

Ironically, IBM has not been among the first to fully employ sophisticated computer systems for coordination and management information because of its desire to maintain the small company environment. It now finds this measure necessary to hold the organization together. Its management information system installed in 1967 is among the most advanced. Whether this will at last destroy the atmosphere that IBM has sought to perpetuate is still unknown.[4]

Many other problems are to confront IBM in the future, but the attitude toward the future business

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[1]Rodgers, Think, p. 200.

[2]Ibid., p. 249.

[3]"Where IBM Looks for Growth," Business Week, June 15, 1968, p. 91.

[4]Ibid., p. 88.

environment is clear. Management positions on social and business matters must not be stereotyped or they will not be seriously regarded. Constructive and reasonable alternatives must constantly be sought. Thomas Watson, Jr. has stated that businesses characteristically have shown less innovation to public problems than to company problems. He further says that this trend must be reversed in order to avoid a double standard and conflict of interests.[1]

The same thesis has characterized IBM as a company which has built noteworthy successes on tradition, competitiveness, sense of morality and cohesiveness. IBM's top executives of today were schooled on these principles, which are now being challenged as means to successful ends.

IBM, however, has prided itself on educated enlightenment and the ability to change. As long as IBM's executives remain loyal to the beliefs expressed by their Chairman, change will be a primary factor in their corporate thought. Perpetuation of IBM's success can only be brought about through additional enlightened managers as time goes on.

The central questions regarding the effects of

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[1] Watson, Jr. Beliefs. p. 99-106.

IBM top management characteristics on its pattern of business success may be summarized as follows:

Strong traditions have instilled basic beliefs in corporate executives which have provided strong motivation and sense of direction. Because these beliefs have been strong, there has been unity of effort. Subordinate to the basic beliefs, but in full support thereof, are the characteristics of aggressive marketing, advanced technology, corporate pride, sense of fair play, search for young, dynamic leadership, emphasis on intensive and continuing education, and a keen awareness of the necessity to change with corporate growth, competition, and social evolution.

The above executive characteristics are seen to be of early origin within IBM and have withstood many tests. It is likely that they are sound and will be applied for some time to come, even though individual executive characteristics may change.

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